

Daniel Graf

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Education

PhD Studies in Computer Science – ETH Zurich, Switzerland – started September 2015

- Advisor: Prof. Dr. Peter Widmayer, group for *Algorithms, Data Structures, and Applications*

Master of Science in Computer Science – ETH Zurich, Switzerland – September 2013 to August 2015

- Final grade point average: 5.99 *
- Focus track: Theoretical Computer Science
- Master thesis on *Scheduling and Sorting Algorithms for Robotic Warehousing Systems*
Advisors: Katerina Böhmova and Prof. Dr. Peter Widmayer, details: <http://dgraf.ch/treesort/>

Exchange Semester – University of Washington, Seattle, USA – April to August 2013

- Visiting graduate student in Computer Science, grade point average: 4.0 **
- Two summer research projects with Prof. Luke Zettlemoyer in artificial intelligence and with Prof. Ira Kemelmacher-Shlizerman in computer vision and video processing

Bachelor of Science in Computer Science – ETH Zurich, Switzerland – September 2010 to August 2013

- Final grade point average: 5.91 *
- Bachelor thesis on *Image Retargeting for Mobile Devices*
Advisors: Dr. Daniele Panozzo and Prof. Dr. Olga Sorkine-Hornung, details: <http://refoorm.at>

Matura, Swiss High School Degree – Kantonsschule Sargans, Switzerland – August 2005 to July 2009

- Degree with focus on physics and applied mathematics, final grade point average: 5.89 *

Awards

ETH D-INFK Willi Studer Award 2016

- Awarded for the best Master degree of the year in the Department of Computer Science

ETH Excellence Scholarship 2013

- Awarded for the Master studies at ETH Zurich

International Olympiad in Informatics

- Bronze medal at the International Olympiad in Informatics (IOI) August 2009 in Bulgaria
- Participation at the Central European Olympiad in Informatics (CEOI) July 2009 in Romania
- Gold medal at the Swiss National Olympiad in Informatics (SOI) in June 2009

ACM ICPC (International Collegiate Programming Contest)

- 2nd place for ETH Zurich at the SWERC regional contest in Valencia 2013 and in Porto 2014 (out of 44/36)
- ACM ICPC World Finals in June 2014 in Yekaterinburg, Russia and in May 2015 in Marrakech, Morocco
- 1st place at the Helvetic Coding Contest at EPFL in 2014 (out of 54), 3rd places in 2012, 2015 & 2017

Various Computer Science Contests

- Google Hash Code March 2016: Qualification: 41st Place (out of 1054), Finals in Paris: 8th Place (out of 50)
- Facebook Hackathon April 2013: 2nd Place at the Pacific Northwest Regional in Seattle
- Swiss Youth in Science 2010: top-grade 'excellent' for end of high school project about the game theoretical analysis of a Swiss card game, presented at the European Science Expo in Moscow
- Robot Team Challenge 2008: First place at this national contest with a self-navigating robot

* Switzerland uses a 6-point grading system, where 6 represents 'excellent', 4 'pass' and 1 'very poor'.

** The University of Washington uses a 4-point grading system, where 4 represents 'excellent' and 0 'very poor'.

Work Experience

Internship as a Software Engineer at Google, Youtube Content ID, September to December 2014, Zurich

Teaching Experience

Teaching Assistant, Algorithms Lab, Fall 2015, 2016, ETH Zurich

- Taught biweekly lectures, created programming exercises and 12 hour final exam for 130 students

Teaching Assistant, Algorithms and Data Structures, Spring 2014, 2015, 2016, Prof. Peter Widmayer, ETHZ

- Taught exercise classes for two hours a week and graded weekly written and programming assignments
- Involved in designing and organizing computer-based coding exam for 280 students in February 2017

Teaching Assistant, Discrete Mathematics, Fall 2012, Prof. Ueli Maurer, ETH Zurich

- Taught exercise classes for two hours a week and graded weekly assignments of 20 students

Research Experience

Research Interests: graph algorithms, data structures, algorithm engineering and computer graphics

Conference Publications

- Loukas Georgiadis, Daniel Graf, Giuseppe F. Italiano, Nikos Parotsidis, Przemyslaw Uznanski: *All-Pairs 2-Reachability in $O(n^w \log n)$ Time*, ICALP 2017.
- Andreas Bärtschi, Jérémie Chalopin, Shantanu Das, Yann Disser, Daniel Graf, Jan Hackfeld and Paolo Penna: *Energy-efficient Delivery by Heterogenous Mobile Agents*, STACS 2017.
- Andreas Bärtschi, Jérémie Chalopin, Shantanu Das, Yann Disser, Barbara Geissmann, Daniel Graf, Arnaud Labourel, Matús Mihalák: *Collaborative Delivery with Energy-Constrained Mobile Robots*, SIROCCO 2016.
- Andreas Bärtschi, Barbara Geissmann, Daniel Graf, Tomas Hruz, Paolo Penna and Thomas Tschager: *On computing the total displacement number via weighted Motzkin paths*, IWOCA 2016.
- Samuel Grütter, Daniel Graf and Benjamin Schmid: *Watch them Fight! Creativity Task Tournaments of the Swiss Olympiad in Informatics*, IOI 2016.
- Daniel Graf: *How to Sort by Walking on a Tree*, details: <http://dgraf.ch/treesort>, ESA 2015.
- Daniel Graf, Daniele Panozzo and Olga Sorkine-Hornung: *Mobile Image Retargeting*, details: <http://refoorm.at>, VMV 2013.

Journal Publications

- Daniel Graf: *How to Sort by Walking and Swapping on Paths and Trees*, Algorithmica, 2017.

External Reviewer for Conferences: LATIN 2016, IWOCA 2016, FUN 2016, SIROCCO 2016, ATMOS 2016

Additional Information

- Computer skills: C, C++, Objective-C, Python, MATLAB, Eiffel, Java, LaTeX, Linux, macOS, Final Cut Pro
- Extracurricular activities:
 - Main organizer and coach of the Swiss Olympiad in Informatics from 2011 to 2016, <http://soi.ch>
 - Mandatory military service in the computer network operations division of the Swiss army, October 2009 to August 2010
 - Organizer of sports and trekking camps as a scout guide, January 2005 to December 2014
 - Hobbies: photography, piano, hiking
- Languages: German (native), English (fluent), French (good), Russian (beginner)